CLAIMS

1. A ferrite magnetic material characterized by comprising an oxide having a composition wherein:

metal elements Sr, Ba and Fe in total have a composition ratio represented by the formula $Sr_{(1-x)}Ba_xFe^{2+}{}_aFe^{3+}{}_b$ in which

$0.03 \leq x \leq 0.80$,

$1.1 \leq a \leq 2.4$, and

$12.3 \leq b \leq 16.1$.

2. The ferrite magnetic material according to claim 1, characterized in that said oxide is represented by $Sr_{(1-x)}Ba_xFe^{2+}{}_aFe^{3+}{}_bO_{27}$.

3. The ferrite magnetic material according to claim 1, characterized in that the ferrite magnetic material comprises a W-type hexagonal ferrite as a main phase.

4. The ferrite magnetic material according to claim 1, characterized in that said x falls within a range of $0.10 \leq x \leq 0.65$.

5. The ferrite magnetic material according to claim 1, characterized in that the ferrite magnetic material comprises one or two of a Ca constituent and a Si constituent as additives in the following contents, respectively, in terms of $CaCO_3$ and SiO_2:

$CaCO_3$: 0 to 3.0 wt% and SiO_2: 0.2 to 1.4 wt%.

6. The ferrite magnetic material according to claim 1, characterized in that the ferrite magnetic material forms any of a ferrite sintered magnet, a ferrite magnet powder, a bonded magnet as a ferrite magnet powder dispersed in a resin, and a magnetic recording medium as a film-type magnetic phase.

7. The ferrite magnetic material according to claim 6, characterized in that said ferrite sintered magnet has a mean grain size of 0.6 μm or less.

8. A ferrite sintered magnet, characterized in that the ferrite sintered magnet comprises a W-type hexagonal ferrite comprising Sr and Ba as a magnetic phase and is comprised of a sintered body having a mean grain size of 0.6 μm or less.

9. The ferrite sintered magnet according to claim 8, characterized in that the ferrite sintered magnet has a coercive force (HcJ) of 3000 Oe or more, a residual magnetic flux density (Br) of 4600 G or more and a squareness ratio (Hk/HcJ) of 85% or more.

10. The ferrite sintered magnet according to claim 8, characterized in that Ba/Sr + Ba (molar ratio) is 0.03 to 0.80.

11. The ferrite sintered magnet according to claim 8, characterized in that Ba/Sr + Ba (molar ratio) is 0.10 to 0.65.

12. The ferrite sintered magnet according to claim 11, characterized in that the ferrite sintered magnet has a coercive force (HcJ) of 3200 Oe or more, a residual magnetic flux density (Br) of 4600 G or more and a squareness ratio (Hk/HcJ) of 85% or more.

13. A method for producing a ferrite sintered magnet, characterized in that the method comprises:

a step A of calcining a raw material powder mixture comprising Sr, Ba and Fe;

a step B of pulverizing the calcined body obtained in said step A;

a step C of milling to a predetermined particle size the pulverized powder obtained in said step B;

a step D of compacting in a magnetic field the milled powder obtained in said step C; and

a step E of obtaining a sintered body, comprising a W-type hexagonal ferrite as a magnetic phase, by sintering the compacted body obtained in said step D.

14. The method for producing a ferrite sintered magnet according to claim 13, characterized in that after said

calcining step A and before said compacting step D in a magnetic field, a powder comprising Sr and/or Ba is added.

15. The method for producing a ferrite sintered magnet according to claim 13, characterized in that said milling step C comprises:

a first milling step of milling said pulverized powder to a predetermined particle size;

a powder heat treatment step of keeping the milled powder obtained in said first milling step at a predetermined temperature for a predetermined time in an atmosphere having an oxygen concentration of 10 vol% or less; and

a second milling step of milling the milled powder, subjected to said powder heat treatment step, to a predetermined particle size.

16. The method for producing a ferrite sintered magnet according to claim 15, characterized in that in said powder heat treatment step, the milled powder obtained in said first milling step is kept at 600 to 1200°C for 1 second to 100 hours.

17. The method for producing a ferrite sintered magnet according to claim 15, characterized in that said second milling step is carried out under more relaxed milling conditions as compared with said first milling step.